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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,195	11/26/2001	Byeong-Soon Ryu	SUN-0017	7016

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EXAMINER

CHEN, WENPENG

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 04/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/993,195

Applicant(s)

RYU, BYEONG-SOON

Examiner

Wenpeng Chen

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-6 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Examiner's responses to Applicant's remark

1. Applicant's amendment filed on 1/5/2005 overcomes the objection to specification set forth in Office Action mailed on 10/5/2004.

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Korea on 12/01/2000 and filing of a certified copy of the Korean application based on the evidence provided on 1/5/2005.

3. Applicant's arguments filed on 1/5/2005 have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicants' arguments but firmly believes that the cited reference to reasonably and properly meet the claimed limitation.

a. Applicants' argument -- Claim 1 recites, *inter alia*, "a knowledge database for storing the image data to a database in an appropriate form by applying a prior knowledge."

Das merely discloses a video compression device that compares current frames to previous frames to determine regions of difference or regions of interest. The region of interest map does not represent prior knowledge of the image, but rather it represent current knowledge of the difference between the previous stored image and the current stored images. The Applicant cites several passages of Das to support the point.

Examiner's response -- The Examiner disagrees with the argument. Das indeed teaches that region of interest map does represent prior knowledge of the image to be coded. This teaching is especially shown in column 12, lines 42-58 as cited by the Examiner in the previous

Art Unit: 2624

Office Action. Das teaches that the regions of interest can be areas corresponding to perceptually important images features (such as faces.) It is obviously faces are not determined by comparing two frames. The regions of interest are determined before wavelet encoding and thus belong to a prior knowledge. Even regions of interest are derived from comparing two frames, they are still of prior knowledge, because they are decided before encoding regions of the current frame.

b. Applicants' argument -- Furthermore, the region of interest map is limited to the image domain and is ignorant of temporal and special characteristics of the imaging system.

Examiner's response -- The limitation was not recited in the original Claims 1-5. Ground of rejection related to this feature is given below with regard to Claim 6.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Das et al. (US patent 5,896,176 cited previously.)

Das teaches an image compression device comprising:

-- an image receiver for storing image data inputted from various kinds of image media; (compression coder of Figs. 1 and 3, and encoder of Fig. 12; column 4, line 35 to column 5, line 23)

Art Unit: 2624

-- a knowledge database for storing the image data to a database in an appropriate form by applying a prior knowledge; (column 7, line 18 to column 8, line 40; column 12, lines 42-58; column 13, lines 15-27; column 14, line 54 to column 15, line 52; The image is segmented into various objects with the background as object #0. Each object and coded separately based on the segmentation masks. The segmentation information such as region of interest map is the prior knowledge.)

-- a hierarchical separator for splitting each of input image into several hierarchical images, respectively, by applying an information stored in the knowledge database; (column 7, line 18 to column 8, line 40; column 12, lines 42-58; column 13, lines 15-27; column 14, line 35 to column 15, line 52; The image is segmented into various objects. The image data of these objects are hierarchical images.)

-- a hierarchical image storage for storing each of the split hierarchical images; (column 4, line 35 to column 5, line 58; The computer has memory to store images in the sequence of frames. When a frame is stored, the memory stores all the split hierarchical images and thus each of them.)

-- a hierarchical image compressor for compressing each of the split hierarchical images; (Fig. 12; column 12, line 59 to column 14, line 21; column 14, line 36 to column 15, line 52; Each object is compressed with a wavelet compressor that is a hierarchical image compressor.)

-- a compressed data storage for storing the compressed data; (column 13, line 45 to column 14, line 3; The compressed data are inherently stored in a memory in the computer after step (6), because step (7) requires to retrieve the compressed data for reconstruction. If the compressed data are not stored, step (7) cannot be performed.)

Art Unit: 2624

-- a decoder for decompressing and restoring the compressed data; (column 13, line 45 to column 14, line 18; The wavelet reconstruction is the decompressing process.)

-- a predicted decompression image storage for storing the restored data; (column 13, line 45 to column 14, line 18; step (9))

-- a knowledge database controller for applying the predicted decompressed image stored in the predicted decompression image storage in order to manage and update information of the knowledge database. (column 5, line 59 to column 6, line 7; column 12, lines 42-59; The difference between frame data and a reconstructed frame data is used to decide the region of interest or moving objects. The results of this decision are then presented as region of interest maps.)

The above-cited passages also teach the methods of Claims 2-3.

For Claim 4, Das further teaches:

-- wherein the image without the background image is split into a changed image and an unchanged image. (column 5, line 59 to column 6, line 6; column 10, lines 4-24; The non-background object is further divided into motion-compensation parts that are unchanged image and motion failure region that is changed part.)

For Claim 5, Das further teaches:

-- wherein the step of updating the restored image in the knowledge database is performed such that an intermediate background image substitutes for the inputted image and initializes a grade integer to '0' where a difference between a block of the inputted image and a block corresponding to the intermediate background image is greater than a threshold value, and that the intermediate background image increases the grade integer by '1' where the difference

Art Unit: 2624

between the block of the inputted image and the block corresponding to the intermediate background image is less than the threshold value, and that the background image updates the image of the blocks where the number of the blocks respectively having a grade integer of over a predetermined value is greater than the threshold value. (column 5, lines 45-67; column 9, lines 35-43; The object image of the moving object is an intermediate background image as defined by the Applicant. Das uses MPEG-1,2 for coding in which images are coded with I frames with each I frame followed by a predetermined number of P and/or B frames. After coding the predetermined number of P and/or B frames, images are coded as I frames for updating. Using the I and P/B frames coding sequence, the coder in the computer inherently needs to count frames after each I-frame coding and reset the count to zero when an image is coded as an I-frame again. The passage in column 9, lines 35-43 teaches that image of an object is coded as I blocks when a difference between a block of the inputted image and a block corresponding to the object image is greater than a threshold value. As a consequence of the I-blocks coding, an object image substitutes for the inputted image and the count that is a grade integer is reset to '0'.)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2624

7. Claim 6 is rejected under 35 U.S.C. § 103 as being unpatentable over Das as applied to Claim 1, and further in view of Agatsuma et al. (US patent 6,476,857) and Kondo (US patent 5,706,367.)

Das teaches the parent Claim 1 of Claim 6. However, it does not teach the feature related to the temporal and special characteristics of the image receiver.

Agatsuma teaches a surveillance system with panning drive to move cameras.

Kondo teaches image compression comprising a feature:

-- wherein a prior knowledge before compressing a current frame includes spatial and temporal characteristics of a camera. (column 17, line 33 to column 18, line 30; column 18, lines 40-50; The moving direction and distance of the camera are spatial and temporal characteristics of camera, an image receiver.)

It is desired to cover a broader surveillance area. And it is further desired to ease motion compensation of images due to camera movement. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to replace each of Das' fixed video cameras with Agatsuma's scanning camera because the replacement increase surveillance area. It would also have been obvious to one of ordinary skill in the art, at the time of the invention, to include moving direction and distance of the camera (spatial and temporal characteristics of an image receiver) as part of the prior knowledge for motion compensation and segmentation of the to-be-coded frames captured in the system taught by the combination of Das and Agatsuma, because the overall combination facilitating motion compensation and thus facilitating coding.

Conclusion

8. THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). The Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wenpeng Chen whose telephone number is 571-272-7431. The examiner can normally be reached on 8:30 am - 5:00 pm.

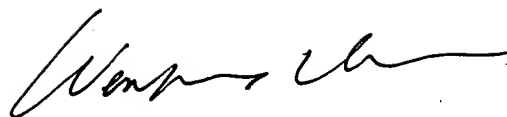
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 571-272-7437. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications. TC 2600's customer service number is 571-272-2600.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Art Unit: 2624

Wenpeng Chen
Examiner
Art Unit 2624

April 22, 2005

A handwritten signature in black ink, appearing to read "Wenpeng Chen", with a long horizontal flourish extending to the right.